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U.S. Army – Baylor University Graduate Program in Health Care Administration

Quantitative and Qualitative Analyses for Fully Integrated Primary Care Clinics in the
Kaiserslautern Military Community

A Graduate Management Project Submitted to
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for the Degree of Master of Health Administration

February 2005

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Abstract

This project evaluated three courses of action, by quantitative and qualitative analyses, related to the integration of U.S. Army (Landstuhl Regional Medical Center) and Air Force (435th Medical Group, Ramstein Air Base) primary care clinics in the Kaiserslautern Military Community, Germany. Senior leaders hypothesize that the Air Force primary care model is more efficient than the Army model, and integration in accordance with the Air Force model will allow the Landstuhl Regional Medical Center to focus upon its core missions of tertiary referral center and primary casualty receiving point for two combat theaters of operation. Using the business case analysis and decision matrix, the following courses of action were evaluated: One – maintaining status quo; Two – integrating family practice and pediatric clinics in existing clinic space; and Three – integrating family practice and pediatric clinics on Ramstein and integrating behavioral health clinics on Landstuhl. Courses of action one and three were rejected; course of action two was recommended. Data analysis showed that both organizations could increase efficiencies of health care delivery mechanisms and increase revenues in excess of \$700,000.

Table of Contents

Acknowledgments	2
Abstract	3
Table of Contents	4
Introduction	5
A. Conditions that prompted the study	6
B. Statement of the problem	9
C. Literature Review	12
D. Purpose	16
Methods and Procedures	16
Results	18
Discussion	20
Conclusion and Recommendations	40
References	44
Appendices	49
A. List of Abbreviations and Acronyms	49
B. Kaiserslautern Military Community Catchment Areas	50
C. Business Case Analysis for Course of Action 2	51
D. Business Case Analysis for Course of Action 3	61
E. Decision Matrix	71

A Business Case Analysis for Fully-Integrated Primary Care Clinics in a United States

Army Medical Center

Introduction

The Executive Committee of Landstuhl Regional Medical Center (LRMC) requested a business case analysis of integrating two primary care United States Air Force clinics into its facility. The Kaiserslautern Military Community (KMC), with over 39,000 military personnel, family members, and civilian employees, comprises the largest military community in Europe and encompasses Ramstein, Vogelweh, Kapaun, and Sembach Air Force Bases, and Landstuhl and several other outlying Army installations (KMC Health Care Requirements, 2004). The two primary military health system (MHS) points of service are LRMC (Landstuhl) and the 435th Medical Group (Ramstein Air Force Base). The Air Force provides primary health care in outpatient clinics to over 20,000 beneficiaries at Ramstein. The Landstuhl Regional Medical Center is the only tertiary care military medical center located outside the continental United States and has a full complement of medical, surgical, and specialty services. Just over 9,000 beneficiaries are enrolled to LRMC primary care clinics, making the provision of primary care minute in comparison to total hospital operations. Recent analyses have drawn attention to the overlapping catchment areas and duplicative services that the two facilities share (Appendix B). The integration of healthcare services in the KMC is one of the LRMC Executive Committee's strategic goals (LRMC, 2004a). Additionally, KMC integration is one of five strategic plan objectives of the 435th Medical (435th Medical Group, 2004a).

Conditions that prompted the study

The aftermath of the terrorist attacks on September 11, 2001 and the global war on terrorism have forever changed the role of LRMC. Located in southwest Germany, LRMC is the only tertiary referral center for two combat theaters, United States Central Command and European Command (LRMC, 2004b). While this primary medical evacuation destination has not changed since the first Gulf War, the sheer troop volume and sustained military actions in these theaters have altered the role LRMC plays in support of these theaters of operation. Current beneficiaries in the European Command are 245,000. However, the influx of United States Central Command forces has raised the population that LRMC supports to 508,000 (LRMC, 2004b).

Landstuhl Regional Medical Center's daily admissions have risen from 16 in 2001 to 28 in 2004, a 175% increase (LRMC, 2004b). Clearly, much of this increase follows global war on terrorism activity. In fact, over 21,900 global war on terrorism patients have passed through this facility since operations commenced in 2001 (LRMC, 2004b). In order to meet these new mission requirements, both the Army and Air Force have sent additional medical staff to LRMC. The bulk of this staff has come in the form of personnel from reserve component Army hospitals. Since 2003, two reserve hospitals have each been mobilized and deployed to LRMC for one year. A third hospital has received deployment orders for early 2005. The sustained global war on terrorism has driven demand for healthcare services to a higher level, and LRMC cannot meet the demand without additional resources. However, the non-combat related mission of providing healthcare to European Command permanent party military members and their dependents remains. The addition of reserve component hospital staff to LRMC has been

a vital component in the ability to treat the thousands of wounded patients. Yet even this augmentation has not afforded LRMC staff the time and resources to effectively treat European Command family members.

For example, magnetic resonance imaging, the orthopedic, neurosurgery, and dermatology clinics, and the psychiatry ward are open to active-duty only. Family members are referred to German facilities in the network for these services. The LRMC Executive Committee wants the hospital to return to the traditional medical center role, focusing upon specialty and subspecialty referral management, and medical management of theater evacuees. A proposed means for achieving this transition is the divestiture of primary care services. Specifically, this project will analyze the feasibility of transferring ownership of the family practice and pediatric clinics from LRMC to the 435th Medical Group.

The current enrollment of the LRMC family practice and pediatric clinics is 9,351 (6,010 in family practice and 3,341 in the pediatric clinic). These clinics have not met Army productivity metrics. In FY04, the family practice relative value units (RVUs) per provider per day for LRMC were 13.1, short of the target of 15.4. Pediatric clinic RVUs per provider per day were 12.3. The organization's approach to primary care is lacking either in priority or in personnel.

Landstuhl Regional Medical Center currently operates an advanced access model. Characterized as a schedule-free appointment process, advanced access matches supply with demand and strives to eliminate waiting time for appointments (Murray & Berwick, 2003). Proponents of advanced access tout gains in provider productivity and patient perceptions of health care accessibility (Bindman & Majeed, 2003; Sturgess, 2004). The

template consists of a mixture of 15 and 20-minute appointment times. In the recent past, the family practice clinic did not provide patients with the ability to schedule appointments in the future. All patients seeking appointments on a given day were seen on that day. The burden was placed on the patient to call back for an appointment on the day he required services. Although LRMC primary care met access to medical care standards at 94%, the latest statistics show patient satisfaction with medical care at 88%. The new primary care chief has modified the template so that 60% of available appointments are for same day appointments and 40% are allotted for routine or established appointments. Additionally, the template provides the capability of scheduling future appointments in the case of required follow-up care (Major John Farr, Chief, Primary Care, personal communication, September 23, 2004).

Meanwhile, the 435th Medical Group on Ramstein Air Force Base has been lauded for its primary care services. Located less than five miles away from LRMC, the 435th Medical Group delivers health care under primary care optimization, a program launched in 2000, in response to an Assistant Secretary of Defense for Health Affairs policy memorandum (United States Air Force, 2000). Teams deliver primary care to an enrolled panel of beneficiaries. Each team consists of a provider, a nurse, two medical technicians, and one administrative clerk. The provider is the primary care manager and will have 1,500 enrollees (435th Medical Group, 2004b). Ramstein currently has over 20,492 beneficiaries (13,637 family practice and 6,855 pediatric) and utilizes an access model similar to the LRMC family practice access model. The template has a mixture of same day and established appointments, and appointment times are 15 minutes in length. The 435th Medical Group patients report 93% patient satisfaction with medical care at

Ramstein. In FY04, the family practice relative value units (RVUs) per provider per day were 13.3. However, the pediatric clinic RVUs per provider per day were 20.

Statement of the Problem

Landstuhl Regional Medical Center and 435th Medical Group, located less than 5 miles apart, have overlapping catchment areas. The two facilities maintain duplicative services, to include family practice and pediatric clinics. This paper analyzes the feasibility of combining these clinics and aligning them under the command and control of the United States Air Force.

Landstuhl Regional Medical Center has been touted as a joint facility for over a decade. The staff exceeds 1,800, including over 300 assigned Air Force personnel. Air Force officers command nine departments or services in LRMC, and one Air Force officer is a deputy commander (LRMC, 2004b). This joint service staff creates a comfortable environment for both patients and employees. Patients often are unaware of and indifferent to the service affiliation of their healthcare provider. For the most part, the hospital staff is likewise not encumbered by their group membership. As both services belong to the same managed care organization, the MHS, the clinical delivery of healthcare is virtually identical. Administrative tasks required by each branch of service tend to present the most challenges (i.e., training and evaluations).

Medical services in the KMC have recently been identified several times as ripe for inter-service integration. In the fall of 2002, the Commander, Europe Regional Medical Command (ERMC), and the Command Surgeon, U.S. Air Forces in Europe, jointly tasked the commanders of LRMC and 435th Medical Group to identify efficient and effective means of delivering healthcare in the KMC (Tricare Europe, 2003a).

Functional groups from both organizations began work in earnest on some 20 disciplines, ranging from primary care to command structure to facility planning. Operations Enduring Freedom and Iraqi Freedom soon slowed the initial momentum. Although there was little to show on paper regarding integration of medical services in the KMC, the two commanders abandoned their traditional roles and exhausted all available collaborative opportunities during combat operations (Tricare Europe, 2003a). Every effort was made to receive, treat, and transport wounded patients irrespective of service affiliation.

After combat operations officially ceased in May 2003, Assistant Secretary of Defense Health Affairs, Dr. William Winkenwerder, took a close look at the evacuation process, to include Air Force aeromedical evacuation, the Theater Patient Movement Center, the Aeromedical Staging Facility, and the role of LRMC. Dr. Winkenwerder tasked Tricare Europe to develop an integration plan for the KMC (Winkenwerder, 2003).

In response, the functional groups from both facilities resumed collaborative efforts. Changes in personnel over the summer months affected progress, and, in December 2003, the initiatives essentially ended. The ERMIC commander, in anticipation of upcoming significant redeployment activities in theater, directed Tricare Europe to cease involvement in integration of the KMC's medical services (Tricare Europe, 2003b). Additionally, the Tricare Management Activity declined to designate the KMC as a multi-service market area. This would have increased local resources under the premise of forming a unified health system (Lt. Col. Diane Reese, Deputy Director, Tricare Europe, personal communication, October 1, 2004). The multi-service market will

replace the Tricare lead agent structure and is designed specifically to aid in the medical service integration between facilities and Department of Defense services in major metropolitan areas. These two events signaled to the LRMC and 435th Medical Group commanders that integration was no longer a priority of higher headquarters.

The two organizations did follow through with a laboratory integration plan. This project was completed in August 2004, the result of over 15 months of planning by personnel of both facilities and United States Air Forces in Europe. Although some fine-tuning is currently being done, early results show clear economies of scale in the provision of laboratory services to the KMC. Military personnel bring samples from 435th Medical Group to LRMC. The facilities share the same clinical information system, so results are readily retrievable. Planners currently are investigating expansion of courier routes to include all of the outlying health clinics in Germany.

However, planning for future facilities in the KMC has not lost momentum. For the past year, a committee including staff from both branches of service and an independent contractor has been analyzing the current and future requirements for facilities. This committee was chartered because LRMC and 435th Medical Group each submitted a multi-million dollar proposal to upgrade infrastructure currently over 50 years old. The results of preliminary economic analysis results call for one of three options: consolidation of primary care at Ramstein; consolidation of healthcare services at LRMC and construction of a troop medical clinic at Ramstein; and construction of a new facility at Ramstein and major renovations at LRMC (KMC Health Care Requirements, 2004).

Literature Review

All of the services have experienced adverse effects with the rising costs of healthcare. The decade of the 1990s provided the most drastic example of MHS cost cutting. During the period 1992 – 2002, the number of inpatient military treatment facilities decreased 53%, from 150 to 80 (Brannman, Miller, Kimble & Christensen, 2002). The evolution of Tricare, the military managed care program, continued through a consolidation initiative that brought the number of regions from 12 down to three in 2004 (Tricare Management Activity, 2002). This should result in cost avoidance for the MHS, and portability issues common to our transient patient population should be drastically reduced. Finally, the services have had the challenge of accounting for and improving the quality of healthcare delivery. Achieving and maintaining accreditation from the Joint Commission on Accreditation of Healthcare Organizations are paramount to each military treatment facility (MTF) commander's success. Moreover, additional civilian standards continue to permeate the MHS. Health Plan Employer Data and Information Sets and several metrics from the Agency for Healthcare Research and Quality are examples quantitative measures of healthcare quality available for both providers and beneficiaries. Cost increases associated with quality, regulatory, and personnel requirements have forced the surgeons general of the three services to continue searching for additional efficiencies in military healthcare delivery.

One such area of opportunity receiving infrequent attention is the integration of the medical departments of the branches of service themselves. In the MHS, the Army, Navy, and Air Force combine to provide healthcare to 8.2 million beneficiaries at an annual cost of \$16 billion (Rumbaugh, 2003). Despite many calls to do so, these

monolithic entities have repeatedly resisted inter-service integration of healthcare services (General Accounting Office, 1999; Hosek & Cecchine, 2001; Rumbaugh, 2003).

As Rumbaugh (2003) suggests, the Goldwater-Nichols Act of 1986 certainly communicated Congressional desire for inter-service collaboration. Several agencies with Department of Defense-level command and control resulted from this Act, including the Defense Logistics Agency and the U.S. Transportation Command. Key to their success was the vertical and horizontal integration across traditional service boundaries. These enterprise agencies, which procure and transport billions of dollars of supplies and equipment across the globe, provide insight into the efficiencies that could be gained by collaboration within the MHS.

The 1998 Defense Authorization Act directed the General Accounting Office to review MHS activities in the national capital area, specifically to identify collaborative opportunities. One year later, the General Accounting Office reported that collaboration offered great opportunities to the 400,000 beneficiaries in the area. Each service operates one medical center, but the total number of MTFs in this region is 26 (General Accounting Office, 1999). Not only are the facilities entirely independent of each other, the services themselves were found deficient in the planning and allocation of medical resources to their MTFs (General Accounting Office, 1999).

The Department of Defense Healthcare Quality Initiatives Review Panel spent 17 months investigating the MHS. Chartered by Congress in 1999, the panel was tasked to review nine initiatives relating to the licensure and credentialing of providers, the quality of healthcare, and activities of the surgical and laboratory departments (Federal Advisory Committee, 2000). Interestingly, their primary recommendation in the 2000 report is for

a Unified Medical Command (Federal Advisory Committee, 2000). The panel recognized that attempts at enhancing the quality of care in the MHS would be impaired by the fragmented, independent environment currently fostered by the services. This suggestion, clearly not one of the nine chartered issues, showed significant insight into the direction and magnitude of required change that lies ahead for the MHS.

A 2001 RAND report found that a joint military medical command would enhance both the readiness and benefit missions of the MHS (Hosek & Cecchine, 2001). This recommendation was hedged upon the reorganization of Tricare (Hosek, & Cecchine, 2001). Additionally, the Health Facilities Planning Agency noted that the KMC is ideally suited for a joint medical command. This recommendation arose from the economic analysis of multi-million dollar infrastructure requests from both LRMC and 435th Medical Group (KMC Health Care Requirements, 2004).

As mentioned earlier, Tricare continues to evolve. This year will see larger but fewer regions (from 12 regions to 3) and the next generation of Tricare contracts. Additionally, establishment of multi-service market areas continues for metropolitan areas with overlapping catchment areas (Taylor, n.d.). These changes are directly linked to the MHS' strategic goals of enhancing jointness, improving interoperability with partners, and optimizing stewardship of resources (Health Affairs, 2004).

The Colorado Springs' market provides an example of inter-service collaboration under a multi-service market structure. Three Air Force MTFs and one Army MTF collectively serve 140,000 beneficiaries (Tricare Management Activity, 2004). Using extensive memoranda of understanding and jointly planning for construction projects, the

respective MTF commanders are viewing their healthcare delivery requirements corporately as opposed to independently (Tricare Management Activity, 2004).

Despite significant improvements in the MHS, the military continues to lag behind the civilian sector. Civilian hospitals spent much of the 1990s purchasing physician practices in an effort to secure specialty and inpatient referral business (Bender, Geoghegan, Lundquist, Cantone, & Krasnick, 1990). This was a final effort to utilize largely vacant hospital facilities in the aftermath of conversion from inpatient to outpatient healthcare (Kongstvedt, 2001). The end of the decade found many of these hospitals divesting themselves of their acquired physician practices (Zisner & Mathews, 2002). Officials discovered that the high costs of producing and maintaining primary care through this mechanism significantly outweighed the financial rewards reaped by referrals (Zisner & Mathews, 2002). The military model follows the early 1990s experiment, where MTFs almost entirely depend upon referrals generated from its own primary care networks.

The MHS has additional difficulty providing healthcare overseas. The General Accounting Office reported in 1990, 1995, and 2000, the challenges beneficiaries faced in obtaining healthcare at MTFs in Europe and the Pacific (General Accounting Office, 1990; General Accounting Office, 1995; General Accounting Office, 2000). This impaired access manifested itself in significant shifts of U.S. beneficiaries to host nation provider networks. Although MTF commanders operate patient liaison offices to coordinate care in host nation facilities, effective management of the sheer volume of referrals has proved elusive (General Accounting Office, 2000). Patients stationed

overseas would experience more efficient and higher quality health services if MTF commanders took a collaborative approach in the regional delivery of healthcare.

Finally, President Bush announced in August 2004 that the overseas military posture would drastically change (Spencer, 2004). The drawdown in Europe will follow the military's transformation to support a more mobile force, capable of responding to today's smaller and quicker enemy. General Bell, Commander, U.S. Army Europe, and General Jones, Supreme Allied Commander, Europe and Commander, European Command, have recently commented that the transformation will shift the numbers of personnel from an Army to an Air Force majority (Anderson, 2004). While details of the European military transformation are fluid from both operational and political positions, one could reasonably deduce that both troops and medical support will be significantly reduced within the next decade. The opportunity for the Army and Air Force to advance integration in this busy medical center could set the stage for the joint environment that is sure to come.

Purpose

The purpose of this paper is to devise a viable business case analysis and decision matrix of the integration of the family practice and pediatric clinics between LRMC and 435th Medical Group. The current command climate in both facilities, as well as their respective higher commands in Europe, supports this integration.

Methods and Procedures

This project will determine, by both quantitative and qualitative analyses, the feasibility of integrating the family practice and pediatric clinics. The quantitative approach will follow the model outlined in the *BCA: Business Case Analysis* by James

W. Brannock (2004). The four essential steps include: identifying background and problem statement; developing business case alternatives; comparing cost-benefit alternatives; presenting a summary and conclusion. The qualitative analysis will follow the decision matrix formula preferred by the Combined Arms Staff and Service School. The decision matrix is a tool that has given many senior military leaders the ability to compare courses of action that contain different weights of evaluation criteria (CAS3, 2004).

Data from fiscal year 2004 were used. Data from fiscal years 2002 and 2003 were reviewed for historical purposes, but not included in the study. The workload at LRMC has significantly increased due to activities affiliated with the global war on terrorism; therefore, the last complete fiscal year was considered baseline. Current operating costs for course of action one (maintain the status quo) were available from standardized Department of Defense information systems. Cost estimates for course of action two (integration of the family practice and pediatric clinics using existing clinic space) and course of action three (integration of the family practice and pediatric clinics on Ramstein and integration of the behavioral health clinics on Landstuhl) were determined through use of the U.S. Army Medical Command business case analysis (BCA) 5.5 template. The U.S. Army Medical Command uses the BCA as a tool to evaluate business practice improvement projects according to their financial impact on the organization (Ardner, 2002). The Microsoft Excel® BCA template guides planners through a series of data entry fields. The fields prompt input for all conceivable costs and benefits associated with the project, returning a comprehensive financial analysis. The multiple, color-coded sheets are linked, and the financial ratios are protected by passwords.

The two primary ratios in the template are the net present value and the benefit to investment. Net present value measures project profitability by considering capital investment costs, and discounting future cash inflows and outflows to the present (Gapinski, 2003). Positive net present value indicates the project has a favorable economic impact to the organization (Gapinski, 2003). The benefit to investment is known in the civilian market as return on investment. Return on investment is a ratio that measures the amount of profit or loss associated with the project (Cleverly & Cameron, 2003). A positive return on investment indicates a return on the capital investment. Both of these ratios are widely used in civilian financial analyses.

Quantitative

Background and Problem Statement

Both the background and problem statement have been discussed in detail under the introductory section of this paper. The importance of identifying the problem is critical to the success of the project (Brannock, 2004; Cooper & Schindler, 2003). Failure to develop a clear problem statement generally results in an incomplete and misguided analysis. The problem, or requirement, is to analyze the feasibility of integrating primary care services of LRMC and 435th Medical Group. Together they currently provide care to 29,843 enrolled beneficiaries in the KMC.

Results

Data were retrieved from the MHS Management Analysis and Reporting Tool, M2 and the Expense Assignment System, version four (EAS-IV) repository. Data from fiscal year 2004, the baseline year for the study, were extracted in December 2004. Data retrieval and initial spreadsheet analysis were performed with the assistance of expert

data analysts. Clinic information was isolated using Defense Medical Information System identifiers and third level Medical Expense Performance Reading codes. Encounters and relative value units (RVUs) were calculated using total amounts, not raw amounts. Relative value units per provider per day were calculated using available provider full-time equivalents. Full-time equivalent physician extenders, skill code two, were discounted by 25% to account for treatment complexity in the RVU formula. Enrollment and support staff ratios were reached using available full-time equivalent personnel.

The 435th Medical Group family practice and pediatric clinics cost \$10.3 million per year. The LRMC family practice and pediatric clinics cost \$7.2 million per year. Costs per clinic visit were \$190 (435th Medical Group) and \$172 (LRMC). Encounter workload was 54,724 (435th Medical Group) and 41,987 (LRMC). Encounters per provider per day for the 435th Medical Group were 17 (family practice clinic) and 20 (pediatric clinic). Encounters per provider per day for LRMC were 16 (family practice clinic) and 12 (pediatric clinic). Relative value units per provider per day for the 435th Medical Group were 13.3 (family practice clinic) and 20 (pediatric clinic). Relative value units per provider per day for LRMC were 13.1 (family practice clinic) and 12 (pediatric clinic). Enrollment for the 435th Medical Group was 1,458 per provider (family practice clinic) and 3,131 per provider (pediatric clinic). Enrollment for LRMC was 957 per provider (family practice clinic) and 725 per provider (pediatric clinic). Support staff to provider ratios for the 435th Medical Group were 3:1 (family practice clinic) and 8:1 (pediatric clinic). Support staff to provider ratios for LRMC were 3.3:1 (family practice clinic) and 3.1:1 (pediatric clinic). Access to medical care for both the

435th Medical Group and LRMC was 94.8%. Patient satisfaction with medical care was 93% at the 435th Medical Group and 88% at LRMC.

Discussion

Development of Business Case Alternatives

Once the problem statement is clear and agreed upon by all involved parties, the identification and research of several courses of action to rectify the problem follow (FM 22-100, 1999). Three alternatives or courses of action were developed (Brannock, 2004).

Course of Action 1

The first course of action is to maintain the status quo. Both LRMC and the 435th Medical Group would continue providing duplicative family practice and pediatric primary care services to a fixed and overlapping beneficiary population. The 435th Medical Group enrollment (20,492) is double that of LRMC enrollment (9,351), and 435th Medical Group workload is 23% higher (54,724 to 41,987 encounters). While the 435th Medical Group clearly provides the majority of family practice care in this region (42,652 to 27,161 encounters), both facilities enroll and care for beneficiaries from all services. This fact aids in the awareness that neither facility discriminates by enrollment or treatment, which aligns with joint service philosophy and multi-service market management (Taylor, n.d.).

The cost to operate the 435th Medical Group family practice and pediatric clinics is \$10.3 million annually, compared to LRMC's cost of \$7.2 million. The \$3.1 million difference primarily lies in pay and supplies. Pay is higher in proportion to the higher support staff that each provider receives under the Air Force primary care optimization

model (United States Air Force, 2000). The government cost to provide a primary care visit is \$190 for the Air Force and \$172 for the Army.

Some senior leaders suggested that the 435th Medical Group primary care optimization model is more effective at delivering primary care than the LRMC model. In fact, the 435th Medical Group is much more productive in their pediatric clinic. Air Force providers log 20 encounters daily compared to 13 encounters for Army providers. Using another reliable productivity metric, relative value units (RVUs) per provider per day also support the efficiency hypothesis at 20 to 12 in favor of the Air Force (Glass, 2003). The difference is less discernable in the family practice clinics. Air Force providers record one more encounter daily (17 to 16), and the RVUs per provider per day is nearly identical (13.3 to 13.1).

Other measures relevant to this course of action are access and patient satisfaction. Leaders hypothesized that patients were experiencing access problems at LRMC, causing lower patient satisfaction in comparison to patients of the 435th Medical Group. In fact, access to medical care is identical at 94.8% and exceeds both branches of service performance thresholds of 90%. The 435th Medical Group does demonstrate that 93% of its patients are satisfied with medical care, compared to 88% of LRMC patients who are satisfied.

Course of Action 2

This course of action requires the integration of the family practice and pediatric clinics under Air Force operational control using existing clinic space. Patients would be enrolled to the KMC primary care clinic and continue to be seen at both Ramstein and LRMC. An Air Force field grade officer would be the clinic commander, controlling all

assets from both branches of service assigned to the KMC primary care clinic. The premise behind this integration follows the hypothesis that the Air Force is more effective at delivering primary care than the Army. Additionally, divestiture of primary care would allow LRMC to focus on core missions of tertiary medical care and primary casualty receiving station for casualties from Iraq and Afghanistan. Divestiture is a contraction strategy linked to the organization's mission, vision, values, and goals (Ginter, Swayne, & Duncan, 2003). As mentioned earlier, the current trend shows hospitals divesting themselves of unprofitable physician practices. In fact, following a divestiture guideline matrix resulted in the recommendation that LRMC should consider divesting this service (Ginter, Swayne, & Duncan, 2003).

This alternative would move the KMC into multi-service market development. Where previous collaborative efforts have stalled and Tricare resources have been denied, proactive integration will demonstrate the willingness of both commanders to maximize local delivery of health care. Additionally, the current senior leadership of both facilities has expressed interest in integrative processes, which may encourage movement toward official Tricare multi-service market designation.

Finally, this alternative would be proactive amid military transformation in Europe. Many believe that while the numbers of military forces in Germany will decrease in the immediate future, the size of the KMC will increase. Ongoing construction at Ramstein Air Base is a fair indicator that the Ramstein airstrip will remain. In preparation for the closure of Rhein Main Air Base in 2006, the Air Force is investing \$600 million into Ramstein, making it a key European airlift hub (McEntee, 2004). Additionally, construction of a \$150 million hotel and shopping center, the largest

construction project in the Department of Defense, began on Ramstein in December 2004 (Murray, 2004). The close proximity of LRMC to the airstrip, along with its untarnished, international reputation for caring for wounded heroes from 37 countries, provides reasonable assurance that this medical center will also survive base closures.

As mentioned earlier, both the Air Force and Army are reviewing proposals for major facility renovations and improvements to their health care facilities on Ramstein and Landstuhl. Much of the current infrastructure is antiquated and falls short of meeting building codes, antiterrorism and force protection requirements, and environmental standards of care (KMC Health Care Requirements, 2004). The proposals, with estimated costs ranging between \$150 to 200 million, support the supposition of an enduring KMC. Again, moving forward with integrative plans now may aid in the upcoming future facility planning process.

The business case analysis for course of action two is shown in Appendix C. There is no room for expansion at Ramstein. Renovations in LRMC clinics and lease of temporary buildings will be required to staff all departments of the KMC primary care clinic to the Air Force primary care optimization model. The additional staff and process efficiencies should generate the capacity for 4,667 more visits each year. This could be reached by recapturing network visits and expanding access to non-Department of Defense eligible beneficiaries, or pay-patients (AR 40-400, 2001). In the KMC, approximately 650 teachers and 720 Army and Air Force Exchange Service employees (potentially pay-patients) have expressed interest in receiving medical care at the military facilities. Additionally, expansion of health care services to the civil service personnel employed by both branches of service brings the total of locally untapped patient sources

to 5,232 (Grace Rolph, GS-12, Chief, Civilian Personnel Branch, LRMC, personal communication, January 10, 2005).

The integration shows an excess of two providers and three clerks. The two providers may be assigned to LRMC specialty clinics to aid in the tertiary referral center mission. The three clerks can be assigned to the third party billing office. The increase in billing staff would aid in the initiation of Air Force third party billing, currently not in place. Additional process efficiencies in identification and automation of beneficiary other health insurance information is projected to return \$789,000 per annum. This course of action requires a \$2.3 million venture capital-funding obligation. Payback is projected to be 13 months, well within the required 36-month period. Net present value is \$403,800, and the return on investment ratio is favorable at 1.08.

Course of Action 3

The final course of action requires the integration of the family practice and pediatric clinics on Ramstein and integration of the behavioral health clinics on Landstuhl. Patients would be enrolled to the KMC primary care clinic and visit providers at Ramstein. An Air Force field grade officer would be the clinic commander, controlling all assets from both branches of service assigned to the KMC primary care clinic. Likewise, an Army field grade officer would command and control all assets of the KMC behavioral health clinic. This proposal expands on the Air Force primary care optimization model proliferation detailed in course of action two, and locates all clinics of like kind together. The duplicative pediatric, family practice, and behavioral health operations at both facilities would be eliminated. The behavioral health clinics are considered in this proposal because of the significant amount of space they occupy in

direct relation to workload. The behavioral health clinic at Ramstein, which includes mental health (life skills), drug testing, family advocacy, and alcohol and drug counseling, occupies one entire floor of the Ramstein clinic. The workload is 8,662 annual encounters. The behavioral health department at LRMC, consisting of psychiatry, psychology, and family advocacy, resides in two wings of the hospital. The workload is nearly double at 16,928 annual encounters. Neither behavioral health clinic appears to follow an enrollment nor staffing model; however, LRMC staff log more RVUs per provider per day (9 to 4) and more encounters per provider per day (4 to 2). Total clinic costs are nearly identical, with LRMC at \$4.2 million and 435th Medical Group at \$4 million. The 435th Medical Group has a 46% higher cost per encounter (\$462 to \$251). Integrated behavioral health should provide some economies of scale to both MTF commanders.

The business case analysis for course of action three is shown in Appendix D. Again, there is no room for expansion at Ramstein. A \$3 million multi-level wing addition to Building 2121 would be required to convert the existing 435th Medical Group behavioral health clinic into suitable space for the KMC family practice clinic. The 435th Medical Group behavioral health clinic would move to temporary buildings on Landstuhl during this construction. Upon completion, the 435th Medical Group family practice clinic would move from the second floor of Building 2114 into the newly constructed wing and the clinic space previously occupied by behavioral health on the third floor of Building 2121. At this time, the LRMC family practice clinic would relocate from wings 1A and 1B to Building 2121 on Ramstein. The KMC family practice clinic would be completely integrated and ready to deliver healthcare. The 435th

Medical Group pediatric clinic, currently located on the first floor of Building 2114, would relocate upstairs into the second floor wing previously occupied by the family practice clinic. The LRMC pediatric clinic would move from wing 9A into the second floor of Building 2114. The second integrated clinic, the KMC pediatric clinic, would be complete. Following minor renovations to the LRMC family practice space, 435th Medical Group behavioral health would move from temporary buildings on Landstuhl into wings 1A and 1B of the hospital. The final clinic integration, the KMC behavioral health clinic, would be complete.

Proliferation of the Air Force primary care optimization model in the KMC primary care clinic, along with single primary care and behavioral health operations, should increase capacity to 6,432 visits per year. As in course of action two, this could be reached by recapturing network visits and expanding access to non-Department of Defense eligible beneficiaries or pay-patients. This course of action also identified two excess providers, who can be reassigned to LRMC specialty clinics. The same three clerks identified as excess in course of action two will be assigned to the third party billing department. The combination of process efficiencies, automation, and establishment of Air Force third party billing is expected to generate \$1.7 million of additional revenue.

The business case analysis for course of action three does not show a payback during the required 36-month period. Venture capital funding required is \$3.5 million. The net present value is \$338,600, and the return on investment ratio is 1.03.

Compare Benefits-Costs of Alternatives

Course of action one required little of the commanders except to continue funding duplicative primary care services at their nearby facilities. While the combined cost (\$17.5 million) to operate the two pediatric and two family practice clinics annually exceeds the venture capital funding requirements for the other courses of action, the premises of higher efficiency, access, and patient satisfaction believed to exist in the Air Force model, were not proved in this analysis.

Course of action two, while providing a positive net present value and the higher return on investment ratio, requires venture capital funding requirements of \$2.3 million and leaves all clinics in existing space. A positive aspect is that no major movement or renovation is necessary. Conversely, maintaining the four separate clinics and providing pediatric care in temporary container buildings can easily be negatively portrayed.

Course of action three is the boldest attempt at accomplishing KMC integration. All duplicative services are eliminated. This should be viewed positively by patients, providing the major drawbacks of construction, clinic relocations, new leadership, new staffing models, and new productivity measures do not outweigh the perceived patient benefits.

Data Sources

Data were extracted from standardized Department of Defense information systems. The primary sources for this business case analysis were accessed using the MHS Management Analysis and Reporting Tool, M2, and from the Expense Assignment System, version four (EAS-IV) repository. All MHS treatment sites report clinical, population, and financial data to the MHS Management Analysis and Reporting Tool and

the Expense Assignment System, version four (EAS-IV) repository-IV. This uniform and involuntary reporting methodology makes information obtained from these enterprise systems valid, reliable, and useful for MHS managed care decision-making (Cooper & Schindler, 2003; Executive Information and Decision Support, 2004). Additionally, scrutiny from senior data analysts and health care executives intimately familiar with the business operations of the two facilities provided validity and reliability measures for the business case analysis.

Ethical Considerations

The business case analysis is primarily a financial analysis. No individually identifiable or protected health information was utilized or detailed in this study.

Qualitative Analysis

This research involves the soft issues accompanying the collaboration between the clinics. Senior level decisions routinely result in adverse consequences at lower levels. Both internal and external customers may experience these effects. The aftermath may manifest itself directly or in secondary or tertiary order events. By interviewing all potentially involved personnel from both facilities, the goal was to identify all foreseeable effects of this merger. The department chiefs and commanders need to include the qualitative analyses as part of their complete decision-making process.

Research for this study was frequently met with resistance by middle managers at both LRMC and the 435th Medical Group. These military officers were trained to be autonomous leaders, essentially from their inception on active duty. Organizational commitment was modeled by superiors and developed in these men and women (Robbins, 2003). Successful officers expect to, and receive, additional authority and

responsibility during their careers. Loss of power or position is negatively perceived, and sharing responsibility rarely works in the military chain of command. Because this venture has an unknown future and threatens established power relationships, the mid-level managers and their concerns must be considered as vital input to this project (Robbins, 2003). Successful KMC integration will require project champions from both facilities. Additionally, leadership must be unified in the approach to integration. This will send clear guidance and support to the medical professionals who will make the change and will demonstrate to Tricare that both facilities are committed to a unified health care system.

One of the primary concerns raised was the use of the primary care optimization model. The 435th Medical Group senior leaders stressed the criticality that the ratio of support staff to provider of 3.5:1 plays in meeting Air Force primary care metrics. The close proximity of the two facilities provides many opportunities for the managers from both facilities to compare notes. The Air Force claimed that the Army did not resource its primary care providers with enough staff to provide primary care effectively. Many dismissed any talk of integration until appropriate staffing up to primary care optimization models was assured.

The Army's approach to delivering primary care is less structured. Significant amounts of research, including conflicting reports from Army senior leaders, was required to uncover informal evidence of a support staff to provider ratio of 2.8:1. The fact that the ratio is unregulated and nearly one full time equivalent less than the Air Force primary care optimization clearly represents how the Army approaches primary care. The enrollment per provider also differs substantially between the models. The Air

Force enrolls 1,500 beneficiaries to each provider, while Army providers are empanelled with 1,178 (Lt. Col. George Patrin, Medical Director, Tricare Europe, personal communication, December 15, 2004).

The combination of more support staff and more enrollees generated the hypothesis that the Air Force is more productive and efficient at delivering primary care. Data analysis did not totally support this hypothesis. While 435th Medical Group pediatric providers did produce more RVUs per day than LRMC (20 to 12), the family practice providers RVUs per day were nearly identical (13.3 to 13.1). The support staff ratios are just as interesting. The 435th Medical Group pediatric clinic support staff to provider ratio is 8:1, compared to 3.1:1 for the LRMC pediatric clinic. The 435th Medical Group family practice support staff to provider ratio is 3:1, compared to 3.3:1 for the LRMC family practice clinic. Neither facility appears to maintain the ratio of support staff to provider recommended by its service (3.5 for Air Force, 2.8 for Army).

The higher primary care optimization support staff undeniably drives the clinic cost upward. Analysis reveals that the 435th Medical Group spends \$3.1 million more than LRMC for less than 25% more workload. The cost per clinic visit is \$190 at the 435th Medical Group and \$172 at LRMC. Again, satisfaction and access measures do not show a significant difference in patient perceptions of health care delivery.

However, the Air Force clearly has standards for the delivery of primary care. While the benefit not to adopt the primary care optimization model may be clear from a financial perspective, the primary care optimization model must be unilaterally adopted during integration planning.

Another barrier to collaboration is military training. Both branches of service mandate regular iterations of new and periodic training. How the service branches approach fulfillment of the training requirements is dramatically different. The Army blocks out 5 hours of training time every Thursday morning, called sergeants' time training (LRMC, 2003). All non-essential activities cease and many clinics are closed. This gives the majority of the hospital military personnel an uninterrupted training period. Training consists of teamwork, warfighting skills, and common tasks relevant to personal protective equipment and survival (LRMC, 2003). Other non-tactical training pertinent to individual job performance in the hospital can be conducted during scheduled sergeants' time training periods.

The Air Force largely promotes training outside the parameters of the duty day. Junior enlisted personnel require the most training, as much as 10 hours weekly. The mechanism for meeting training mandates can depend upon the supervisor and the duty section. Some supervisors do train as much as 5 hours weekly in the duty day, leaving the rest of the required time for individual airman completion. Regardless of how the training is completed, it must be documented weekly (SMSgt Rick Robinson, Superintendent, 435th Medical Squadron, personal communication, January 6, 2005).

Experienced Air Force senior enlisted and officers must train regularly. The current Air Force senior leadership is primarily focused on access to care and does not support formal training periods during the duty day that would decrease access. Consequently, many of the training requirements are completed after conclusion of the duty day. A large number of modules are available through computer-based training, enabling portability and individual preference for completion. Monthly readiness

training events also occur at Ramstein. The 435th Medical Group clinics close during the duty day and all non-essential personnel train on unit-specific tasks, on-the-job training, basic life support skills, and wartime readiness training (AFI36-2201V3, 2004).

The 435th Medical Group leadership is primarily concerned about the differences in military training. If the Air Force were to operate the KMC primary care clinic, their senior leaders predict all Army personnel would be unavailable every Thursday during sergeants' time training. This would strain resources of the Air Force and its ability to maintain access standards for the entire KMC. The senior leadership of both facilities must agree as to how military training requirements will be met in order for there to be a successfully integrated clinic.

One method is to observe how the Air Force unit located in the hospital manages its training requirements in the midst of Army sergeants' time training. As previously mentioned, the 435th Medical Squadron of 300 personnel is imbedded into LRMC. Many clinics have staff from both service branches. Some clinics share the workload in such a manner that all personnel are afforded ample training time during the duty day. For example, Air Force technicians operate the pharmacy every Thursday morning, which allows Army technicians to attend sergeants' time training. On Tuesday, only Army technicians are scheduled in the pharmacy and Air Force technicians conduct section training. Because this clinic is classified as an essential activity, closing during sergeants' time training is not an option. The intra-clinic collaboration allows both military groups to fulfill training requirements. Similar examples exist in other clinics of the hospital (SMSgt Rick Robinson, Superintendent, 435th Medical Squadron, personal communication, January 6, 2005).

While training is clearly a salient issue, the staff from LRMC and the 435th Medical Squadron have demonstrated over the past 14 years that training can be completed without affecting patient care. Landstuhl's leadership has wholly integrated its training programs. Observing the processes in place and being proactive will enable both branches of service to continue meeting training requirements in an integrated primary care clinic.

Another subject for qualitative consideration is coding. The 435th Medical Group does not have coders. Providers and technicians complete this task, often at the end or after the official duty day (Major Jacob Van Sant, Group Practice Manager, 435th Medical Group, personal communication, December 15, 2004). The Army recognizes that providers are not coders and is moving away from provider coding (Ulsher, 2004). Records processed by certified coders are of a higher quality compared to provider-coded records. The quality of data is higher in both accuracy and completeness. The benefits of coders are evident in several ways. Managerially, the organization receives full credit for the workload performed. A primary measurement of workload efficiency, as mentioned earlier, is the RVU. Accurate coding is an integral component of the RVU, making coders a critical link in organizational ability to meet branch of service metric goals (Glass, 2003). Staffing models largely depend upon workload. Accurate workload capture will demonstrate to senior leadership exactly what occurs in the organization. This may result in justification for hiring additional personnel. Fiscally, the capture of more accurate and complete workload should increase organizational revenue. The billing department will submit third party claims that reflect the resources utilized in patient treatment.

Landstuhl Regional Medical Center is investing in a remote coding contract. This contract will replace the haphazard system currently in place. Some clinics have coders, while in other clinics the providers do the coding. The contract will standardize the coding process and remove a substantial administrative burden from the providers. The coders will utilize a combination of electronic access to the Composite Health Care System (CHCS) and scanned paper documents. After the coding is complete, the results will be posted into CHCS. This enables the increase in third party billings mentioned during the financial analysis, but more importantly, moves patient safety forward. The next generation of CHCS, CHCSII, is currently being fielded. When all MTFs come online, each point of service in the MHS will be linked together (Major Timothy Hoiden, Chief, Clinical Operations Division, LRMC, personal communication, January 5, 2005). As all of the information is now available in a readily accessible electronic medical record, many of the goals mentioned in the Institute of Medicine report, *Crossing the Quality Chasm* (2001), will be addressed.

The electronic medical record will be complete, demonstrating the organizational commitment to patient-centeredness and safety. Eliminating the asymmetry of information will permit patients and providers to make informed health care decisions. Medical errors should be reduced if complete and accurate information is available at all points of service in the health care system. Another recommended goal that will be met lies in increasing provider efficiency. Enabling providers to have timely access to the complete medical record will allow each provider to make quick and comprehensive decisions for each patient. Paperwork will not be misplaced, eliminating requests for duplicative clinical screening.

Remote coding may aid in planning clinic integration. The senior leadership of LRMC is willing to include the integrated clinic into the coding contract. The senior leadership of the 435th Medical Group must support the benefits of increased data quality and workload and the decreased administrative burden on providers that a remote coding contract will bring. An integrated clinic with a remote coding contract should increase provider efficiency and accurately depict the workload of the entire KMC.

The Landstuhl Regional Medical Center is leveraging technology to enhance medical transcription. Dragon NaturallySpeaking® Medical Speech recognition software instantly transcribes a clinical dictation (Major Timothy Hoiden, Chief, Clinical Operations Division, LRMC, personal communication, January 5, 2005). The provider is able to record the events of a clinic visit both quickly and accurately. A patient may receive a hard copy before leaving the office. This aids in clear patient communication and documentation (May, 2005). More importantly, the visit will now exist as part of the electronic medical record. Again, this is imperative for patient safety and continuity of care. Paper documents or medical records are frequently unavailable during a patient visit. The mobile military population will benefit immensely from a complete and readily accessible medical record. Voice recognition software and medical transcription play critical roles in the transition to the electronic medical record. Additionally, the complete and legible transcribed record will aid in third party billing. Coders will have more information to process RVUs, and the third party billing department will process a complete and accurate bill for the services that were provided.

The 435th Medical Group does not do medical transcription. Hand-written forms are attached to the paper record (Major Jacob Van Sant, Group Practice Manager, 435th

Medical Group, personal communication, December 15, 2004). These documents suffer from illegibility, and patients generally are not provided a copy of the record of the encounter. Little information is recorded into CHCS, increasing information asymmetry and fragmented health care delivery. Clearly, patients of the 435th Medical Group patients will benefit from medical transcription. Voice recognition software will assist senior leadership with the release of CHCSII and the transition to the electronic medical record. Providers from all points of the MHS will be able to access the electronic medical record, but not the paper medical record. Most likely, Air Force senior leadership will require medical transcription for the electronic medical record in the future. Landstuhl Regional Medical Center senior leadership is willing to provide licenses and training for voice recognition software to 435th Medical Group providers. The 435th Medical Group leadership can take advantage of this technology to increase patient safety, quality, and organizational revenue in an integrated clinic.

Landstuhl Regional Medical Center is also employing technology to enhance the appointment process. An automated call distribution server will be operational in 2005. The server establishes an elaborate tree mechanism that will guide patients to the appropriate clinic after a series of prompts. Patients will only need to remember and dial one new phone number and will still be able to speak to a person during the appointment process (Major Timothy Hoiden, Chief, Clinical Operations Division, LRMC, personal communication, January 5, 2005).

The second part of this process improvement plan is the centralized call center. At the end of the automated call distribution server phone tree, call center personnel will answer the call. This staff of six, trained on appointment processing and customer

service, will schedule all LRMC primary care appointments. Centralizing the appointment process will free the front desk clinic clerks for other tasks, like collecting information about beneficiaries' other health insurance. Third party billing and revenues are projected to increase as part of this initiative.

Landstuhl Regional Medical Center has the capacity and capability of handling the appointment process for the entire KMC (Major Timothy Hoiden, Chief, Clinical Operations Division, LRMC, personal communication, January 5, 2005). The senior leadership of LRMC has offered to provide this service for an integrated clinic. The senior leadership of the 435th Medical Group will benefit from this arrangement. The 435th Medical Group call center will merge with the LRMC call center and generate additional economies of scale. The 435th Medical Group front desk personnel will have time to collect other health insurance information for third party billing. This will be a large undertaking, as 435th Medical Group currently does not conduct third party billing. However, much of the revenue projected in the financial analysis depends upon the concerted efforts of establishing and billing third parties for services provided to 435th Medical Group beneficiaries. The automated call distribution center server and centralized call center will aid both facility commanders in receiving additional third party revenue.

These six qualitative criteria (primary care optimization, military training, third-party collections, coding, medical transcription, and the call center) were evaluated using the decision matrix. It provides an objective method of comparing courses of action with weighted evaluative criteria (Combined Arms and Services Staff School, 2004). In relation to clinic integration, or maintaining the status quo, the most critical criteria for

success were primary care optimization, military training, third party billing, and coding. Dependent variable entry followed a five-point Likert scale, with a higher number associated with greater value and importance to the course of action (Cooper & Schindler, 2003).

Results of the decision matrix, shown in Appendix E, indicate that clinic integration has an advantage over maintaining the status quo. Qualitative analysis is not as clear as quantitative analysis. The decision matrix is a proven tool for this type of decision-making, but a fair amount of subjectivity exists in determining the dependent variable entry. Nevertheless, the senior leaders of both facilities now have quantitative fiscal and technical analyses for the proposed clinic integration.

Assumptions

Several assumptions must be noted for this analysis. The primary assumption is that the data obtained from Department of Defense information systems are valid. Since this analysis crosses over branches of service, every effort was given to retrieve data utilized throughout the MHS. As noted earlier, all MTFs report clinical, population, and financial data to the MHS Management Analysis and Reporting Tool and the Expense Assignment System, version four (EAS-IV) repository-IV. The business case analysis drew heavily from these two information systems. Senior data analysts intimately familiar with military medical center operations and skilled in using these information systems performed all data retrieval associated with this project.

Another assumption lies with the projected increase in workload. The business case analysis demonstrated an increase in capacity due to personnel additions and process efficiencies. Even though the data do not indicate large amounts of network leakage

(demand imbalance over supply), the model assumes that a fair amount of the new capacity (supply) will be utilized. The data for network visits are largely incomplete. The true amount of demand currently being sent to the network is unknown. The model assumes 370 of the known 616 network visits each year (60%) will be recaptured. Additionally, the model assumes that over 4,000 visits will be completely utilized and will generate revenues from pay patients.

The amounts of expected third party revenue must also be considered. The model assumes that 9% of 435th Medical Group beneficiaries are eligible for other health insurance. While this is a fair estimate compared to the known LRMC population, the exact percentage is unknown. The 435th Medical Group does not process third party claims, based on the belief that there would be no return on the investment required to establish a billing department (Col. Dan Hansen, Deputy Commander, 435th Medical Group, personal communication, September 9, 2004). Additionally, the ability of front desk clerks to capture accurate health insurance information is positively assumed. Although auditors found LRMC deficient in processes, procedures, and management controls in its third party collection department, the senior leadership of LRMC has addressed these issues and is confident that significant increases in third party revenue will soon be realized (U.S. Army Audit Agency, 2004).

Another assumption lies with enhancing referral management. The premise behind clinic integration is the desire of LRMC's Executive Committee to operate the facility as a tertiary referral center. The senior leadership of LRMC sees this move as a more effective use of provider assets than the current scheme of delivering both primary and specialized care. The model assumes that the personnel required to staff the KMC

primary care clinic would be hired or reassigned to the new Air Force clinic commander. Through clinic integration, two providers were identified as excess. These providers may be assigned to a LRMC specialty clinic. However, additional training for these providers, or hiring of additional specialists, would likely be required before any return on referral management goals is realized.

Finally, the ability to procure venture capital funding and equitably disperse third party collections needs to be considered. The model calls for a minimum of a \$2.3 million venture capital investment for clinic integration. Not only does this analysis assume that the money will be available, cooperation between the branches of services regarding individual contributions for this requirement is positively assumed. Once the third party revenues begin to be realized, the model assumes that there will be an agreeable disbursement plan. The business case analysis projects increased revenues from third party and pay patient billing. Although the 435th Medical Group would now be delivering all of the KMC primary care, this additional revenue would not be realized without employment of the LRMC third party billing department. Leaders from both organizations must agree on the source and commitment of venture capital funding and must develop an equitable plan for the redistribution of third party revenues.

Conclusions and Recommendations

The purpose of this paper was to conduct a business case analysis and decision matrix of the integration of the family practice and pediatric clinics between LRMC and the 435th Medical Group. The analysis is quite clear. Continuing operations of the duplicative clinics costs the service branches in excess of \$17 million annually. This cost is greater than the venture capital funding requirements presented in the business case

analyses. Of the two integration proposals, course of action two is preferred. This project requires \$2.3 million in start-up costs and integrates the clinics at their existing locations. A \$403,000 return on investment and payback during the required 36-month period is projected.

Integration would leverage technology to advance patient safety, data quality, and provider efficiency. Both facilities would realize some economies of scale by combining operations and their limited health care resources. The 29,843 beneficiaries should benefit from the establishment of an integrated primary care clinic.

My recommendation is to move forward with clinic integration. Facility commanders should come together and develop an integration activity matrix. Because KMC integration has been running in the background for the past two years, senior leadership must shift from consideration of consolidation to action. The commanders must be unified in all aspects of primary care integration. This will signal to both organizations the precedence and priority that this project now carries.

As mentioned earlier, middle managers from both organizations strongly oppose integration. Only when the senior leadership directs cooperation will their subordinates forge ahead with a unified health system. Additionally, the support from higher headquarters for integration that each commander currently possesses can provide leverage to the designation of the KMC as multi-service market area. The ERM commander and the USAFE surgeon, along with the leadership of Tricare Europe, must communicate to the Tricare Management Activity how the local changes in health care delivery will positively benefit KMC beneficiaries. The multi-service market area title will increase resources and provide additional governance for all KMC military health

system points of service. Although this appointment would be beneficial from an enterprise position, I do not feel its absence should be a barrier to integration.

One way the commanders can address the start-up funds required for integration is to use LRMC third party resources. Last year, the organization realized over \$12 million through various third party billing and medical savings account collections. As previously mentioned, changes in automation and policies are expected to increase these monies during this fiscal year. Much of the capital investment required for these technologic initiatives came directly from third party collections. The Landstuhl Regional Medical Center commander could invest \$2.3 million from this revenue source to integrate primary care in the KMC. The 435th Medical Group commander could commit to return a percentage (i.e., 10%) of the expected third party revenues from this joint venture to LRMC. Another method would be to implement a fixed annual payment (i.e., \$100,000) from the 435th Medical Group to LRMC in exchange for using the LRMC third party billing department.

While the quantitative and qualitative analyses performed in this study were comprehensive based on available information sources, further research is recommended. Project champions from both branches of service are necessary. Once the commanders set priorities for integrative action, these advocates will uncover additional sources of information and can facilitate solutions previously inhibited by resistance toward change. Extensive site surveys and detailed construction costs are needed. The effects that construction and relocation will have upon patient parking must be considered and coordinated with engineers from both installation activity offices. Integration will also affect demand for ancillary operations. While not part of this research, further analyses

should consider the impact that integration will have upon patient accessibility and convenience for these services. For example, if demand for laboratory services increases and additional courier runs are necessary, the military manpower currently performing this task may need to be replaced with contracted services and additional expenses will result. Likewise, senior leaders should consider pharmacy consolidation in support of primary care integration. Now is perhaps an opportune time to incorporate a centralized outpatient pharmacy into the building plans of the large shopping mall currently undergoing construction on Ramstein.

Additionally, I recommend that the senior leaders commit to integrating the Tricare service centers. These centers, located near the primary care clinics at Ramstein and Landstuhl, operate completely independently of each other. Because of non-uniform business rules, referral management is essentially nonexistent. Neither facility has an accurate picture of network demand. The staff at each center duplicates efforts of monitoring credentialing, quality of care, and continuity of care with network providers. Integration of the service centers may accelerate designation of the KMC as a multi-service market area, providing increased resources and organizational structure as previously discussed. A recently renovated building on Landstuhl should provide enough space to accommodate an integrated Tricare service center. This operation should be able to identify and manage network demand, as well as improve the quality of patient care. These data will provide accurate input into ongoing analyses of integrated clinics. I believe integration of the Tricare service centers is a necessary precursor to KMC primary care integration. This initial consolidation not only provides immediate benefits to beneficiaries, it sets the stage for success for primary care integrative efforts.

References

- AFI36-2201V3. (2004). *On the job training administration*. Retrieved January 5, 2005, from <http://www.e-publishing.af.mil/search.asp?keyword=afi+36-2201>
- AR 40-400. (2001). *Patient administration*. Retrieved January 5, 2005, from https://akocomm.us.army.mil/usapa/epubs/pdf/r40_400.pdf
- Anderson, J.R. (2004, September 29). Eastern European Task Force among items on transformation drawing board. *Stars and Stripes*, p. 3.
- Ardner, D. (2002). BCA 101 (Mechanics). Landstuhl Regional Medical Center, Germany.
- Bender, A.D., Geoghagan, S.S., Lundquist, S.H., Cantone, J.M., & Krasnick, C.J. (1990). Primary care referral management: A marketing strategy for hospitals. *Journal of Health Care Marketing*, 10(2), 62-5.
- Bindman, A.B., & Majeed, A. (2003). Primary care in the United States: Organisation of primary care in the United States. *BMJ*, 326(7390), 631-4.
- Brannock, J.W. (2004). *BCA: Business case analysis: Examples, concepts & techniques: Featuring the '8 day BCA'*. Plant City, FL: STS Publications.
- Brannman, S., Miller, R., Kimble, T., & Christensen, E. (2002). *Health professions' Retention-accession incentives study report to congress (Phases II & III: Adequacy of special pays and bonuses for medical offices and selected other health care professionals)*. Alexandria, VA: Center for Naval Analyses.
- Cleverly, W.O., & Cameron, A.E. (2003). *Essentials of health care finance* (5th ed.). Sudbury, MA: Jones and Bartlett.
- Combined Arms and Services Staff School (2004). Decmat application. Retrieved

- October 7, 2004, from <https://cgsc2.leavenworth.army.mil/cas3/students/>
- Cooper, D.R., & Schindler, P.S. (2003). *Business research methods* (8th ed.). New York: McGraw-Hill-Irwin.
- Executive Information and Decision Support. (2004). EI/DS data marts. Landstuhl Regional Medical Center, Germany.
- Federal Advisory Committee. (2000). *DoD healthcare quality initiatives review panel report*. Sembach Air Force Base, Germany.
- FM 22-100. (1999). *Army leadership*. Retrieved January 3, 2005, from https://akocomm.us.army.mil/usapa/doctrine/22_Series_Collection_1.html
- 435th Medical Group. (2004a). Ramstein/Rhein-Main 2004 strategic plan. Ramstein Air Force Base, Germany.
- 435th Medical Group. (2004b). 435th Medical Operations Squadron command brief. Ramstein Air Force Base, Germany.
- Gapinski, L.C. (2003). *Understanding healthcare financial management* (4th ed.). Chicago: Health Administration Press.
- General Accounting Office (1990). *Access to medical care at overseas military hospitals* GAO Publication Number GAO/T-HRD-90-20). Washington, DC: U.S. Government Printing Office.
- General Accounting Office (1995). *Defense health care: Problems with medical care overseas are being addressed* (GAO Publication Number GAO/HEHS-95-156). Washington, DC: U.S. Government Printing Office.
- General Accounting Office (1999). *Defense health care: Tri-service strategy needed to*

- justify medical resources for readiness and peacetime care* (GAO Publication Number GAO/HEHS-00-10). Washington, DC: U.S. Government Printing Office.
- General Accounting Office (2000). *Defense health care: Resources, patient access, and challenges in Europe and the Pacific* (GAO Publication Number GAO/HEHS-00-172). Washington, DC: U.S. Government Printing Office.
- Ginter, P.M., Swayne, L.E., & Duncan, W. J. (2003). *Strategic management of health care organizations* (4th ed.). Oxford, UK: Blackwell.
- Glass, K. (2003). *RVUs: Applications for medical practice success*. Dubuque, IO: Kendall Hunt.
- Health Affairs (2004). MHS strategic map. Sembach Air Force Base, Germany.
- Hosek, S.D. & Cecchine, G. (2001). *Reorganizing the military health system: Should there be a joint command?* (RAND Document No. MR-1350-OSD). Arlington, VA: RAND Corporation.
- Institute of Medicine. (2001). *Crossing the quality chasm: A new health system for the 21st century*. Washington, DC: National Academy Press.
- KMC Health Care Requirements (2004). Unpublished executive summary. European Regional Medical Command, Heidelberg, Germany.
- Kongstvedt, P. (2001). *The managed care handbook* (4th ed.). Gaithersburg, MD: Aspen.
- Landstuhl Regional Medical Center (2003). LRMC memorandum 350-11: Sergeants time training. Landstuhl Regional Medical Center, Germany.
- Landstuhl Regional Medical Center (2004a). Balanced score card strategy map FY 2004. Landstuhl Regional Medical Center, Germany.
- Landstuhl Regional Medical Center (2004b). Landstuhl Regional Medical Center

- command brief. Landstuhl, Germany.
- May, E.L. (2005). Enhanced patient understanding: Taking steps to improve outcomes. *Healthcare Executive*, 20(1), 9-14.
- McEntee, M. (2004, August 19). Reduction plan likely won't affect already-transformed USAFE. *Stars and Stripes*, p. 5.
- Murray, B. (2004, December 5). Ground is broken for new mall-hotel complex at Ramstein. *Stars and Stripes*, p. 2.
- Murray, M., & Berwick, D.M. (2003). Advanced access: Reducing waiting and delays in primary care. *JAMA*, 289(8), 1035-40.
- Robbins, S.P. (2003). *Organizational behavior* (10th ed.). Upper Saddle River, NJ: Pearson Education.
- Rumbaugh, J.R. (2003). Department of Defense medical transformation: A case for the defense health agency. *Military Medicine*, 168(8), 626-30.
- Spencer, J. (2004). *Principles for restructuring America's global military infrastructure*. Retrieved October 7, 2004, from <http://www.heritage.org/Research/NationalSecurity/wm554.cfm>
- Sturgess, H. (2004). Advanced access and what it really means. *Pulse*, 64(6), 32-3.
- Taylor, P. (n.d.). Thoughts on multi-service market management. Sembach Air Force Base, Germany.
- Tricare Europe (2003a). Regional cooperation and optimization initiatives. Sembach Air Force Base, Germany.
- Tricare Europe (2003b). Regional cooperation and optimization initiatives update. Sembach Air Force Base, Germany.

Tricare Management Activity (2002). Tricare regional contractors for the United States.

Sembach Air Force Base, Germany.

Tricare Management Activity (2004). Colorado Springs multi-service market FY2005

business plan. Colorado Springs, CO.

U.S. Army Audit Agency (2004). Third party collection program: Europe regional

medical command. Landstuhl Regional Medical Center, Germany.

Ulsher, J. (2004). Coding initiative update. Landstuhl Regional Medical Center,

Germany.

United States Air Force. (2000). *A guidebook to primary care optimization.*

Washington, D.C.

Winkenwerder, W. (2003). Memorandum for Executive Director, TMA. Subject: Trip

report from visit to Europe – Kaiserslautern Military Community, Germany and

Rota, Spain. Available from Tricare Europe, Sembach Air Force Base, Germany.

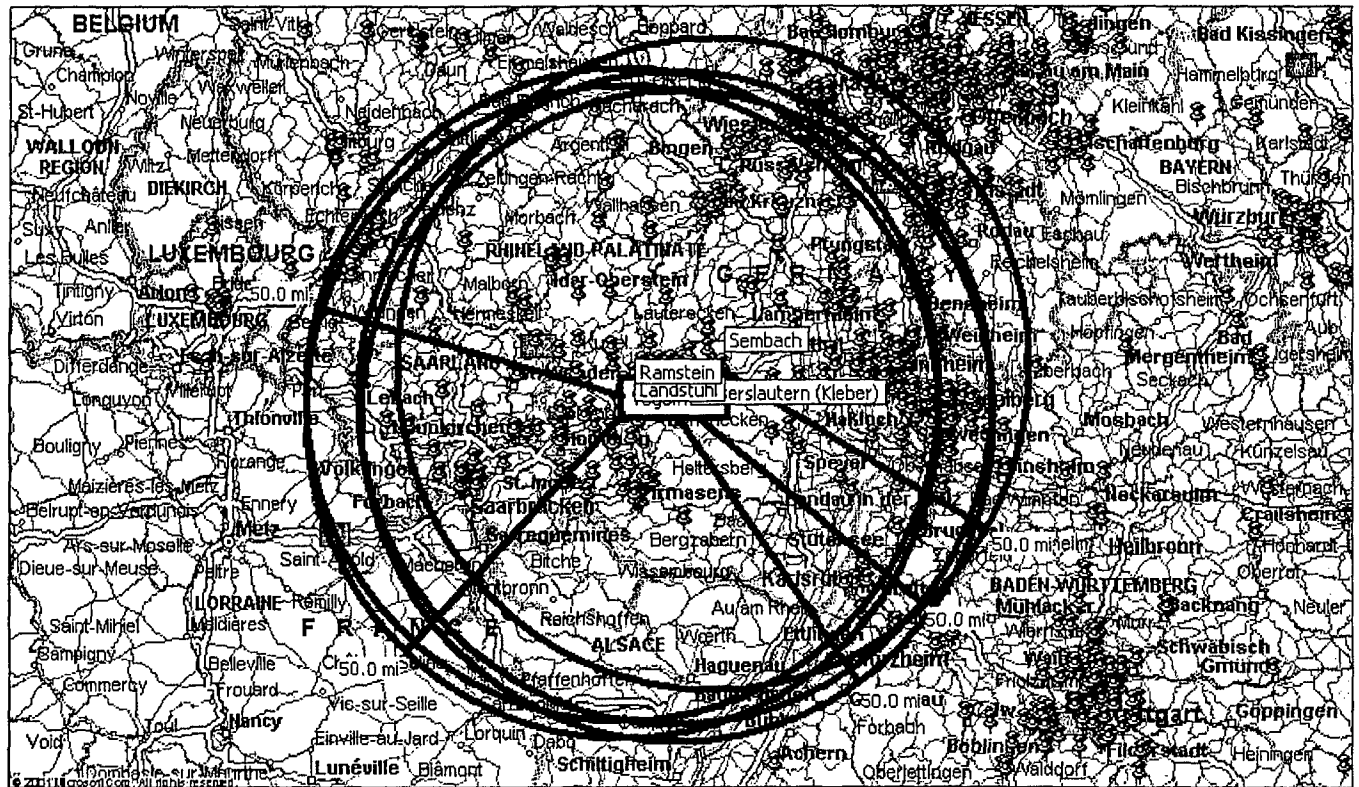
Zisner, D.K., & Mathews, M. (2002). *Health-system-owned primary care networks:*

Where's the value now? Washington, DC: Dorsey and Whitney LLC.

Appendix A: List of Abbreviations and Acronyms

ERMC-European Regional Medical Command
KMC-Kaiserslautern Military Community
LRMC-Landstuhl Regional Medical Center
MHS-Military Health System
MTF-Military Treatment Facility
RVU-Relative Value Unit

Appendix B – Kaiserslautern Military Community Catchment Areas



Appendix C – Business Case Analysis for Course of Action 2

Recapture Targets (Workload)						Net Savings & Loss Calculations (\$000)								
36-Mo Total		Year 1	Year 2	Year 3	Year 4	Benefit to Investment Ratio value < 1 is a Negative ROI	Net Present Value (NPV)	Fiscal Year	Year 1	Year 2	Year 3	Year 4	36-Month Program Total	
								# of Months	12	12	12	0	<--- = 36	
ADMISSIONS														
Supp Care		0	0	0	0			Personnel (Linked)	1,056.6	1,056.6	1,056.6	1,056.6		
CHAMPUS (All)		0	0	0	0			Travel (Linked)	0.0	0.0	0.0	0.0		
Revised Financing		0	0	0	0		Leases/Rents	91.9	91.9	91.9	91.9			
Over-65		0	0	0	0		Capital Contracts	0.0	0.0	0.0	0.0			
Other		0	0	0	0		Marg. Supplies	88.7	177.3	177.3	177.3			
Sub-Total		0	0	0	0		Equipment (Linked)	22.4	0.0	0.0	0.0			
							Facility Mod (Linked)	60.0	0.0	0.0	0.0			
CLINIC VISITS							Misc. (Linked)	12.0	0.0	0.0	0.0			
Supp Care		0	0	0	0		NPV	Other (Not Linked)	0.0	0.0	0.0	0.0	Outflow Total	
CHAMPUS (All)		2,334	4,667	4,667	4,667	1.08	\$5,184.9	Requirement	1,331.5	1,325.8	1,325.8	1,325.8	\$5,308.9	
Revised Financing														
							Benefits	TNEX - RF ADD (Linked)	0.0	0.0	0.0	0.0		
Over-65							Cost	TNEX - RF NADD (Linked)	0.0	0.0	0.0	0.0		
Other							Avoidance	CHAMPUS A&O (linked)	0.0	86.6	86.6	86.6		
								TFL > 65 (linked)	0.0	0.0	0.0	0.0		
Sub-Total		16,335	2,334	4,667	4,667			Supp Care (linked)	0.0	0.0	0.0	0.0		
							NPV	Other (Not Linked)	0.0	589.2	589.2	589.2		
SURG. PROCEDURES							\$1,964.2	Cost Avoidance	0.0	675.8	675.8	675.8		
Supp Care		0	0	0	0		Benefits	TNEX - RF ADD	0.0	0.0	0.0	0.0		
CHAMPUS		0	0	0	0		PSC Savings	TNEX - RF NADD (Linked)	0.0	0.0	0.0	0.0		
Revised Financing								CHAMPUS A&O	86.6	0.0	0.0	0.0		
								TFL > 65 (linked)	0.0	0.0	0.0	0.0		
Over-65								Supp Care (linked)	0.0	0.0	0.0	0.0		
Other								Other (Not Linked)	589.2	0.0	0.0	0.0		
Sub-Total		0	0	0	0			PSC Cost Savings	675.8	0.0	0.0	0.0		
Projected Start Date 1-Oct-05						Discount Factor 1.60%	NPV \$675.8	3rd Party Collect. (linked)	642.2	789.1	789.1	789.1		
Payback Period (Breakeven)		1.1 Years or 13 Months						Other (Not Linked)	0.0	0.0	0.0	0.0		
								Other (Not Linked)	0.0	0.0	0.0	0.0		
Projected Payback Date		5-Nov-06												
What is the project buying?							NPV	Other (Not Linked)	0.0	0.0	0.0	0.0	Inflow Total	
							\$2,935.8	Direct MTF Savings	642.2	789.1	789.1	789.1	\$5,712.7	
													36-Mo ROI	
							Net Savings or (Loss)		(13.5)	139.1	139.1	139.1	\$403.8	
							Venture Capital Funding Requirement		689.2	536.7	536.7	536.7	\$2,299.3	

CHAMPUS - Civilian Health and Medical Program of the Uniformed Services
PSC - Personal Services Contract
TFL - Tricare For Life
TNEX - Tricare Next Generation

Figure C1. Quad sheet from Course of Action 2 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

Change in Workload in the Military Treatment Facility (MTF)				
Enter Fiscal Year (FY <u> </u>) In each column	Year 1	Year 2	Year 3	Year 4
Enter the Number of Month for each FY activities are expected to occur	12	12	12	12
Workload SHIFT Avoidance - Work that will move to the network if BCA is not put in place All MCSC 1.0 Activities & For All "Non-Psych" Workload for MCSC 2.0 Activities				
Outpatient ADD Visits/SDS	4297	4297	4297	4297
Outpatient NADD Visits/SDS		370	370	370
Total CHAMPUS Visits				
Outpatient AD Visits/SDS				
Total Outpatient Visits/SDS	2149	4667	4667	4667
Inpatient ADD Admissions				
Inpatient NADD Admissions				
Total CHAMPUS Admissions	0	0	0	0
Inpatient AD Admissions				
Total Admissions	0	0	0	0
New Workload - Increase in MTF workload if BCA is put in place (Recapture) All MCSC 1.0 Activities & For All "Non-Psych" Workload for MCSC 2.0 Activities				
Outpatient ADD Visits/SDS				
Outpatient NADD Visits/SDS	370			
Total CHAMPUS Visits				
Outpatient AD Visits/SDS				
Total Outpatient Visits/SDS	185	0	0	0
Inpatient ADD Admissions				
Inpatient NADD Admissions				
Total CHAMPUS Admissions	0	0	0	0
Inpatient AD Admissions				
Total Admissions	0	0	0	0
AD - Active Duty ADD - Active Duty Dependent CHAMPUS - Civilian Health and Medical Program of the Uniformed Services MCSC - Managed Care Support Contract NADD - Non-Active Duty Dependent SDS - Same Day Surgery				

Figure C2. Direct care workload sheet from Course of Action 2 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

General Schedule (GS) Personnel				
	Year 1	Year 2	Year 3	Year 4
Number of Provider Full-Time Equivalents (FTE)	8	8	8	8
GS Cost of Providers	\$ 841,776	\$ 841,776	\$ 841,776	\$ 841,776
Number of Support Staff FTEs	5	5	5	5
GS Cost of Support Staff	\$ 214,813	\$ 214,813	\$ 214,813	\$ 214,813
Total GS Cost	\$ 1,056,589	\$ 1,056,589	\$ 1,056,589	\$ 1,056,589
Contract Personnel				
Number of Provider FTEs	0	0	0	0
Contract Cost of Providers	\$ -	\$ -	\$ -	\$ -
Number of Support Staff FTEs	0	0	0	0
Contract Cost of Support Staff	\$ -	\$ -	\$ -	\$ -
Total Contract Cost	\$ -	\$ -	\$ -	\$ -
Total Personnel Cost	\$ 1,056,589	\$ 1,056,589	\$ 1,056,589	\$ 1,056,589

Select Local →

EUR ▼

Estimated Benefit % 25%

Locality Rate: 13.00%

Local Description: EUROPE

* Note that civilian GS pay rates represent General Schedule pay rates (step 5) plus any locality pay. Additional cost of Benefits are added for all GS employees.

Salary Table 2004-GS 2004 General Schedule Including Locality Pay 1.25

PROVIDERS								
Description	Provider GS Cost				Enter the # of GS Providers FTEs for Each Year			
	GS	Step 5 + Benefits	Specialty Pay	Total Pay	Year 1	Year 2	Year 3	Year 4
Physician	13 ▾	\$ 100,701	\$ 40,000	\$ 140,701	2	2	2	2
Nurse	9 ▾	\$ 58,396	\$ 35,000	\$ 93,396	6	6	6	6
	1 ▾	Total GS PROVIDER Cost per Year			\$ 841,776.18	\$ 841,776.18	\$ 841,776.18	\$ 841,776.18
Support Staff								
Description	Support Staff GS Cost				Enter the # of GS Support Staff FTEs for Each Year			
	GS	Step 5 + Benefits	Specialty Pay	Total Pay	Year 1	Year 2	Year 3	Year 4
Technician	6 ▾	\$ 42,963	\$ -	\$ 42,963	5	5	5	5
Clerk	4 ▾	\$ 34,445	\$ -	\$ 34,445				
	1 ▾	Total GS SUPPORT STAFF Cost per Year			\$ 214,813.00	\$ 214,813.00	\$ 214,813.00	\$ 214,813.00

Figure C3. Investment – Personnel sheet from Course of Action 2 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

Change in Marginal (Supply) Costs				
	Year 1	Year 2	Year 3	Year 4
*Change in Outpatient Workload	2333	4667	4667	4667
Marginal cost Per Outpatient Unit	\$38.00	\$38.00	\$38.00	\$38.00
Total Outpatient Marginal Costs	\$88,665	\$177,346	\$177,346	\$177,346
*Change in Inpatient Workload	0	0	0	0
Marginal cost Per Inpatient Unit				
Total Inpatient Marginal Costs	\$0	\$0	\$0	\$0
Total Change in Marginal Cost	\$88,665	\$177,346	\$177,346	\$177,346

Figure C4. Investment – Marginal supply cost sheet from Course of Action 2 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

Change in Capital Costs - Equipment (Fiscal Analysis)

	Year 1	Year 2	Year 3	Year 4
New Patient Care Equip (Non-disposable)	Input Whole \$ Cost			
	\$7,200	\$0	\$0	\$0
Exam Tables	\$3,000			
Lights				
Scopes				
Adjustable Stools				
Dopplers				
Adjustable Chairs	\$1,200			
Diagnostic tables	\$3,000			
Other				
Specialty Equip	\$0	\$0	\$0	\$0
Write-in as needed				
Write-in as needed				
Computer Equip	\$11,750	\$0	\$0	\$0
New Computers	\$10,000			
Software				
Telemedicine Hookups				
Local Area Network (LAN) Hookups	\$1,500			
Composite Healthcare System (CHCS) Terminals	\$250			
Other				
Non-Clinical Equip	\$3,400	\$0	\$0	\$0
Desks	\$1,500			
Curtains				
Phones	\$800			
Chairs	\$1,100			
Other				
Other/Misc	\$0	\$0	\$0	\$0
Capital Investment Totals	\$22,350	\$0	\$0	\$0

Figure C5. Investment – Equipment sheet from Course of Action 2 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

Change in Capital Costs - Facility Mods (Fiscal Analysis)				
	Year 1	Year 2	Year 3	Year 4
Facility	\$60,000	\$0	\$0	\$0
Backlogged/Urgent				
Facilities Renovation				
New Facilities/Site Prep Cost	\$60,000			
Other				
Other/Miscellaneous	\$0	\$0	\$0	\$0
Capital Investment Totals	\$60,000	\$0	\$0	\$0

Figure C6. Investment – Facility modifications sheet from Course of Action 2 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

Capital Costs - Leases & Contracts (Fiscal Analysis)				
	Year 1	Year 2	Year 3	Year 4
Facility/Equipment Lease Cost	\$91,866	\$91,866	\$91,866	\$91,866
Container Buildings (10)	\$91,866	\$91,866	\$91,866	\$91,866
New & Modified Contracts Cost	\$0	\$0	\$0	\$0
Capital Investment Totals	\$91,866	\$91,866	\$91,866	\$91,866

Figure C7. Investment – Leases and contracts sheet from Course of Action 2 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

Miscellaneous Costs				
Input whole \$ amounts	Year 1	Year 2	Year 3	Year 4
Description	Cost \$	Cost \$	Cost \$	Cost \$
Third-Party Collections (TPC) training	\$6,000			
Marketing	\$6,000			
Miscellaneous Item Totals	\$12,000	\$0	\$0	\$0

Figure C8. Investment – Miscellaneous costs sheet from Course of Action 2 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

Change in Third Party Collections (TPC)					
OHI % ↓	Visits ↓	Year 1	Year 2	Year 3	Year 4
9%	5				
Change in ADD Outpatient Visits		2,333	4,667	4,667	4,667
Change in TPC visits		1,033	2,067	2,067	2,067
Avg ADD Outpatient TPC		\$50.00	\$50.00	\$50.00	\$50.00
(Visits) X (OHI) X (Avg TPC)		\$4,650	\$9,302	\$9,302	\$9,302
Change in MSA Outpatient visits		1,300	2,600	2,600	2,600
Avg MSA Outpatient Collection		\$109	\$109	\$109	\$109
(MSA) X (Avg MSA)		\$ 142,207	\$ 284,414	\$ 284,414	\$ 284,414
Change in Ramstein TPC		20492	20492	20492	20492
Outpatient TPC		\$50.00	\$50.00	\$50.00	\$50.00
(Visits) X (OHI) X (Avg TPC) X (Visits/Yr)		\$461,070	\$461,070	\$461,070	\$461,070
Change in LRMCC TPC		\$28,594	\$28,595	\$28,596	\$28,597
20% Efficiency Factor		\$34,313	\$34,314	\$34,315	\$34,316
Total change in TPC		\$642,240	\$789,100	\$789,101	\$789,102

ADD - Active Duty Dependent
 LRMCC - Landstuhl Regional Medical Center
 MSA - Medical Savings Account
 OHI - Other Health Insurance

Figure C9. MTF benefit – Third party collection sheet from Course of Action 2 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

CHAMPUS (ALASKA & OCONUS)

COST RECAPTURE SAVINGS	Year 1	Year 2	Year 3	Year 4
PSC COST AVOIDANCE FOR OUTPATIENT WORKLOAD				
BASELINE (Current PSC*) OUTPATIENT				
TARGET (Additional Avoidance) OUTPATIENT	370			
Average Professional (Outpatient) CMAC or Outpatient PSC Cost	\$234.00			
Total Outpatient Visit Cost Avoidance Savings	\$86,580	\$0	\$0	\$0
Total RECAPTURE COST SAVINGS	\$86,580	\$0	\$0	\$0

CHAMPUS (ALASKA & OCONUS)

COST AVOIDANCE	Year 1	Year 2	Year 3	Year 4
PSC COST AVOIDANCE FOR OUTPATIENT WORKLOAD				
BASELINE (Current PSC*) OUTPATIENT				
TARGET (Additional Avoidance) OUTPATIENT		370	370	370
Average Professional (Outpatient) CMAC or Outpatient PSC Cost		\$234.00	\$234.00	\$234.00
Total Outpatient Visit Cost Avoidance Savings	\$0	\$86,580	\$86,580	\$86,580
Total COST AVOIDANCE SAVINGS	\$0	\$86,580	\$86,580	\$86,580

CHAMPUS - Civilian Health and Medical Program of the Uniformed Services

CMAC - CHAMPUS Maximum Allowable Charges

OCONUS - Outside the Continental United States

PSC - Personal Services Contract

Figure C10. Revenue - Champus sheet from Course of Action 2 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

Appendix D – Business Case Analysis for Course of Action 3

Recapture Targets (Workload)						Net Savings & Loss Calculations (\$000)							
36-Mo Total		Year 1	Year 2	Year 3	Year 4	Benefit to Investment Ratio value < 1 is a Negative ROI	Net Present Value (NPV)	Fiscal Year	Year 1	Year 2	Year 3	Year 4	36-Month Program Total ← = 36
								# of Months	12	12	12	0	
ADMISSIONS						1.03	Total Investment OUTFLOW	Personnel (Linked)	1,056.6	1,056.6	1,056.6	1,056.6	Outflow Total \$8,836.3
Supp Care		0	0	0	0			Travel (Linked)	0.0	0.0	0.0	0.0	
CHAMPUS (All)		0	0	0	0			Leases/Rents	183.7	183.7	0.0	0.0	
Revised Financing		0	0	0	0			Capital Contracts	0.0	0.0	0.0	0.0	
Over-65		0	0	0	0			Marg. Supplies	128.6	257.3	257.3	257.3	
Other		0	0	0	0			Equipment (Linked)	102.0	0.0	0.0	0.0	
Sub-Total		0	0	0	0			Facility Mod (Linked)	3,200.0	0.0	0.0	0.0	
CLINIC VISITS								Misc. (Linked)	20.0	20.0	0.0	0.0	
Supp Care		0	0	0	0		NPV	Other (Not Linked) Requirement	0.0	0.0	0.0	0.0	
CHAMPUS (All)		3,216	6,432	6,432	6,432		\$8,710.2		4,691.0	1,517.6	1,313.9	1,313.9	
Revised Financing		0	0	0	0			Benefits	0.0	0.0	0.0	0.0	
Over-65		0	0	0	0			Cost Avoidance	0.0	0.0	0.0	0.0	
Other		0	0	0	0			TNEX - RF ADD	0.0	0.0	0.0	0.0	
Sub-Total		22,512	3,216	6,432	6,432			CHAMPUS A&O	0.0	101.9	101.9	101.9	
SURG. PROCEDURES								TFL > 65 (linked)	0.0	0.0	0.0	0.0	
Supp Care		0	0	0	0		NPV	Supp Care (linked)	0.0	0.0	0.0	0.0	
CHAMPUS		0	0	0	0		\$2,008.5	Other (Not Linked) Cost Avoidance	0.0	589.2	589.2	589.2	
Revised Financing		0	0	0	0				0.0	691.1	691.1	691.1	
Over-65		0	0	0	0			Benefits	0.0	0.0	0.0	0.0	
Other		0	0	0	0			TNEX - RF ADD	0.0	0.0	0.0	0.0	
Sub-Total		0	0	0	0			TNEX - RF NADD	0.0	0.0	0.0	0.0	
Projected Start Date						Discount Factor	NPV	Other (Not Linked) PSC Cost Savings	589.2	0.0	0.0	0.0	
Payback Period (Breakeven)						1.60%	\$691.1		691.1	0.0	0.0	0.0	
Projected Payback Date								Benefits	1,136.8	1,758.0	1,758.0	1,758.0	
What is the project buying?								Direct to MTF	0.0	0.0	0.0	0.0	
2 providers, 6 nurses; 5 technicians; multi-level wing construction on Ramstein								Other (Not Linked)	0.0	0.0	0.0	0.0	
							NPV	Other (Not Linked)	0.0	0.0	0.0	0.0	Inflow Total
							\$6,246.3	Direct MTF Savings	1,136.8	1,758.0	1,758.0	1,758.0	\$9,174.9
								Net Savings or (Loss)	(2,863.2)	931.4	1,135.1	1,135.1	36-Mo ROI
													\$338.6
								Venture Capital Funding Requirement	3,554.2	0.0	0.0	0.0	\$3,554.2
Start									Year 1	Year 2	Year 3	Year 4	
0 Cumulative Investment									4,691.0	6,208.6	7,522.4	8,836.3	
0 Cumulative Avoidance/Savings									1,827.8	4,276.8	6,725.8	9,174.9	
0 Cumulative Net Savings or (Loss)									(2,863.2)	(1,931.7)	(796.6)	338.6	

CHAMPUS - Civilian Health and Medical Program of the Uniformed Services
PSC - Personal Services Contract
TFL - Tricare For Life
TNEX - Tricare Next Generation

Figure D1. Quad sheet from Course of Action 3 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

Change in Workload in the Military Treatment Facility (MTF)				
Enter Fiscal Year (FY__) in each column	Year 1	Year 2	Year 3	Year 4
Enter the Number of Month for each FY activities are expected to occur	12	12	12	12
Workload SHIFT Avoidance - Work that will move to the network if BCA is not put in place				
Outpatient ADD Visits/SDS	5982	5982	5982	5982
Outpatient NADD Visits/SDS		450	450	450
Total CHAMPUS Visits	5982	6432	6432	6432
Outpatient AD Visits/SDS				
Total Outpatient Visits/SDS	2991	6432	6432	6432
Inpatient ADD Admissions				
Inpatient NADD Admissions				
Total CHAMPUS Admissions	0	0	0	0
Inpatient AD Admissions				
Total Admissions	0	0	0	0
New Workload - Increase in MTF workload if BCA is put in place (Recapture) All MCSC 1.0 Activities & For All "Non-Psych" Workload for MCSC 2.0				
Outpatient ADD Visits/SDS				
Outpatient NADD Visits/SDS	450			
Total CHAMPUS Visits	450	0	0	0
Outpatient AD Visits/SDS				
Total Outpatient Visits/SDS	225	0	0	0
Inpatient ADD Admissions				
Inpatient NADD Admissions				
Total CHAMPUS Admissions	0	0	0	0
Inpatient AD Admissions				
Total Admissions	0	0	0	0
AD - Active Duty ADD - Active Duty Dependent CHAMPUS - Civilian Health and Medical Program of the Uniformed Services MCSC - Managed Care Support Contract NADD - Non-Active Duty Dependent SDS - Same Day Surgery				

Figure D2. Direct care workload sheet from Course of Action 3 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

General Schedule (GS) Personnel				
	Year 1	Year 2	Year 3	Year 4
Number of Provider Full-Time Equivalents (FTE)	8	8	8	8
GS Cost of Providers	\$ 841,776	\$ 841,776	\$ 841,776	\$ 841,776
Number of Support Staff FTEs	5	5	5	5
GS Cost of Support Staff	\$ 214,813	\$ 214,813	\$ 214,813	\$ 214,813
Total GS Cost	\$ 1,056,589	\$ 1,056,589	\$ 1,056,589	\$ 1,056,589
Contract Personnel				
Number of Provider FTEs	0	0	0	0
Contract Cost of Providers	\$ -	\$ -	\$ -	\$ -
Number of Support Staff FTEs	0	0	0	0
Contract Cost of Support Staff	\$ -	\$ -	\$ -	\$ -
Total Contract Cost	\$ -	\$ -	\$ -	\$ -
Total Personnel Cost	\$ 1,056,589	\$ 1,056,589	\$ 1,056,589	\$ 1,056,589

Select Local →

EUR ▼

Estimated Benefit %

25%

Instructions

Locality Rate:

13.00%

Local Description:

EUROPE

* Note that civilian GS pay rates represent General Schedule pay rates (step 5) plus any locality pay. Additional cost of Benefits are added for all GS employees.

Salary Table 2004-GS

2004 General Schedule Including Locality Pay

1.25

PROVIDERS								
Provider GS Cost					Enter the # of GS Providers FTEs for Each Year			
Description	GS	Step 5 + Benefits	Specialty Pay	Total Pay	Year 1	Year 2	Year 3	Year 4
Physician	13 ▾	\$ 100,701	\$ 40,000	\$ 140,701	2	2	2	2
Physician-extender	12 ▾	\$ 84,681		\$ 84,681				
Nurse	9 ▾	\$ 58,396	\$ 35,000	\$ 93,396	6	6	6	6
	1 ▾	Total GS PROVIDER Cost per Year			\$ 841,776.18	\$ 841,776.18	\$ 841,776.18	\$ 841,776.18
Support Staff								
Support Staff GS Cost					Enter the # of GS Support Staff FTEs for Each Year			
Description	GS	Step 5 + Benefits	Specialty Pay	Total Pay	Year 1	Year 2	Year 3	Year 4
Technician	6 ▾	\$ 42,963	\$ -	\$ 42,963	5	5	5	5
Clerk	4 ▾	\$ 34,445	\$ -	\$ 34,445				
	1 ▾	Total GS SUPPORT STAFF Cost per Year			\$ 214,813.00	\$ 214,813.00	\$ 214,813.00	\$ 214,813.00

Figure D3. Investment – Personnel sheet from Course of Action 3 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

Change in Marginal (Supply) Costs				
	Year 1	Year 2	Year 3	Year 4
*Change in Outpatient Workload	3216	6432	6432	6432
Marginal cost Per Outpatient Unit	\$40.00	\$40.00	\$40.00	\$40.00
Total Outpatient Marginal Costs	\$128,640	\$257,280	\$257,280	\$257,280
*Change in Inpatient Workload	0	0	0	0
Marginal cost Per Inpatient Unit				
Total Inpatient Marginal Costs	\$0	\$0	\$0	\$0
Total Change in Marginal Cost	\$128,640	\$257,280	\$257,280	\$257,280

Figure D4. Investment – Marginal supply cost sheet from Course of Action 3 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

Change in Capital Costs - Equipment (Fiscal Analysis)

	Year 1	Year 2	Year 3	Year 4
New Patient Care Equip (Non-disposable)	Input Whole \$ Cost			
	\$17,500	\$0	\$0	\$0
Exam Tables	\$7,500			
Lights				
Scopes				
Adjustable Stools				
Dopplers				
Adjustable Chairs	\$2,500			
Diagnostic tables	\$7,500			
Other				
Specialty Equip	\$0	\$0	\$0	\$0
Write-in as needed				
Write-in as needed				
Computer Equip	\$26,500	\$0	\$0	\$0
New Computers	\$22,000			
Software				
Telemedicine Hookups				
Local Area Network (LAN) Hookups	\$3,000			
Composite Healthcare System (CHCS) Terminals	\$1,500			
Other				
Non-Clinical Equip	\$58,000	\$0	\$0	\$0
Desks	\$11,000			
Curtains				
Phones	\$3,000			
Chairs	\$14,000			
Other	\$30,000			
Capital Investment Totals	\$102,000	\$0	\$0	\$0

Figure D5. Investment – Equipment sheet from Course of Action 3 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

Change in Capital Costs - Facility Mods (Fiscal Analysis)				
	Year 1	Year 2	Year 3	Year 4
Facility	\$3,200,000	\$0	\$0	\$0
Backlogged/Urgent				
Facilities Renovation	\$3,000,000			
New Facilities/Site Prep Cost	\$150,000			
Other	\$50,000			
Other/Miscellaneous	\$0	\$0	\$0	\$0
Capital Investment Totals	\$3,200,000	\$0	\$0	\$0

Figure D6. Investment – Facility modifications sheet from Course of Action 3 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

Capital Costs - Leases & Contracts (Fiscal Analysis)				
	Year 1	Year 2	Year 3	Year 4
Facility/Equipment Lease Cost	\$183,732	\$183,732	\$0	\$0
Container Buildings	\$183,732	\$183,732		
New & Modified Contracts Cost	\$0	\$0	\$0	\$0
Capital Investment Totals	\$183,732	\$183,732	\$0	\$0

Figure D7. Investment – Leases and contracts sheet from Course of Action 3 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

Miscellaneous Costs				
Input whole \$ amounts	Year 1	Year 2	Year 3	Year 4
Description	Cost \$	Cost \$	Cost \$	Cost \$
Third-Party Collections (TPC) training	\$10,000	\$10,000		
Marketing	\$10,000	\$10,000		
Miscellaneous Item Totals	\$20,000	\$20,000	\$0	\$0

Figure D8. Investment – Miscellaneous sheet from Course of Action 3 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

Change in Third Party Collections (TPC)					
OHI % ↓	Visits ↓	Year 1	Year 2	Year 3	Year 4
9%	5				
Change in ADD Outpatient Visits		3,216	6,432	6,432	6,432
Change in TPC visits		1,916	3,832	3,832	3,832
Avg ADD Outpatient TPC		\$50.00	\$50.00	\$50.00	\$50.00
(Visits) X (OHI) X (Avg TPC)		\$479,000	\$958,000	\$958,000	\$958,000
Change in MSA Outpatient visits		1,300	2,600	2,600	2,600
Avg MSA Outpatient Collection		\$ 109	\$ 109	\$ 109	\$ 109
(MSA) X (Avg MSA)		\$ 142,207	\$ 284,414	\$ 284,414	\$ 284,414
Change in Ramstein TPC		20,492	20,492	20,492	20,492
Outpatient TPC		\$50.00	\$50.00	\$50.00	\$50.00
s) X (OHI) X (Avg TPC) X (Visits/Yr)		\$461,070	\$461,070	\$461,070	\$461,070
Change in LRMC TPC		\$45,398	\$45,398	\$45,398	\$45,398
20% Efficiency Factor		\$54,478	\$54,478	\$54,478	\$54,478
Change in Outpatient TPC		\$1,136,755	\$1,757,962	\$1,757,962	\$1,757,962
Total change in TPC		\$1,136,755	\$1,757,962	\$1,757,962	\$1,757,962

ADD - Active Duty Dependent
 LRMC - Landstuhl Regional Medical Center
 MSA - Medical Savings Account
 OHI - Other Health Insurance

Figure D9. MTF Benefit – Third party collection sheet from Course of Action 3 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

CHAMPUS (ALASKA & OCONUS)

COST RECAPTURE SAVINGS	Year 1	Year 2	Year 3	Year 4
PSC COST AVOIDANCE FOR OUTPATIENT WORKLOAD				
BASELINE (Current PSC*) OUTPATIENT				
TARGET (Additional Avoidance) OUTPATIENT	401			
Average Professional (Outpatient) CMAC or Outpatient PSC Cost	\$254.00			
Total Outpatient Visit Cost Avoidance Savings	\$101,854	\$0	\$0	\$0
Total RECAPTURE COST SAVINGS	\$101,854	\$0	\$0	\$0

CHAMPUS (ALASKA & OCONUS)

COST AVOIDANCE	Year 1	Year 2	Year 3	Year 4
PSC COST AVOIDANCE FOR OUTPATIENT WORKLOAD				
BASELINE (Current PSC*) OUTPATIENT				
TARGET (Additional Avoidance) OUTPATIENT		401	401	401
Average Professional (Outpatient) CMAC or Outpatient PSC Cost		\$254.00	\$254.00	\$254.00
Total Outpatient Visit Cost Avoidance Savings	\$0	\$101,854	\$101,854	\$101,854
Total COST AVOIDANCE SAVINGS	\$0	\$101,854	\$101,854	\$101,854

CHAMPUS - Civilian Health and Medical Program of the Uniformed Services

CMAC - CHAMPUS Maximum Allowable Charges

OCONUS - Outside the Continental United States

PSC - Personal Services Contract

Figure D10. Revenue - Champus sheet from Course of Action 3 BCA (MEDCOM BCA 5.5 template for Microsoft Excel®).

Appendix E – Decision Matrix

DECISION MATRIX

Weight Criteria COA	1.00	1.00	1.00	1.00	1.00	1.00	Total
	PCO	Military Training	TPC	Coding	Med Transcription	Call Center	
Integrate Clinics	1/5	1/5	1/5	1/5	1/4	1/4	10.000
Status Quo	1/4	1/4	1/3	1/3	1/4	1/3	57.870
	Min Max	Min Max	Min Max	Min Max	Min Max	Min Max	

Multiplication Matrix

Less is better

All values times 10^{-5}

Consistency Ratio = 100.00